

# PATENT ABSTRACTS OF JAPAN

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## (54) HEAT SEALANT LAYER AND LAMINATE USING THE SAME

### (57)Abstract:

**PROBLEM TO BE SOLVED:** To form a laminate having superior antistatic property and characteristic, and a lid material combining a stable adhesiveness, good peelability and excellent antistatic effect by providing a static dispersive layer consisting of conductive minute grains and a binder on one surface of a heat seal resin layer.

**SOLUTION:** A heat seal resin layer 2 forming a heat seal layer 1 is made up of an ethylene vinyl acetate copolymer, a hotmelt adhesive consisting mainly of olefin, elastomer or the like, etc. The static dispersive layer 3 formed on one surface of the heat seal layer 1 is made such that coat liquid with minute grains such as conductive minute grains of tin oxide or the like or minute grains such as an organic silicone compound dispersed in a vehicle is coated by a gravure reverse method. The conductive minute grain have preferably a primary average grain diameter of, e.g. 0.01–10  $\mu\text{m}$ , and can form a laminate having a rate of surface resistance of  $10^8$ – $10^{12}$   $\Omega/\text{square}$ . Material used for a binder of the static dispersive layer 3 is preferable to be polyester, urethane, acrylic resin or the like.



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CLAIMS

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## [Claim(s)]

[Claim 1] It is the coating liquid with which the static electricity diffusion layer which prepared the static electricity diffusion layer in one field of a heat-sealing nature resin layer distributed the conductive particle to the vehicle by the gravure reversing method 0.05 - 0.5 g/m<sup>2</sup> Heat sealant layer which carries out coating (solid content) and is characterized by the surface resistivity being 10<sup>8</sup>-10<sup>12</sup>ohm/\*\*.

[Claim 2] The layered product characterized by preparing an oriented film in the heat-sealing nature resin layer side of the static electricity diffusion layer \*\*\*\*\* of said heat sealant layer, and the opposite side.

[Claim 3] The layered product according to claim 2 characterized by preparing an interlayer between said oriented film and a heat-sealing nature resin layer.

[Claim 4] The layered product according to claim 2 characterized by preparing the vacuum evaporation layer of an interlayer and a metallic foil, or an inorganic substance between said oriented film and said heat-sealing nature resin layer.

[Claim 5] The layered product according to claim 2 characterized by preparing an interlayer and a moisture absorption layer between said oriented film and said heat-sealing resin layer [claim 6] The layered product according to claim 2 characterized by preparing an interlayer, a moisture absorption layer, and an oxygen uptake layer between said oriented film and said heat-sealing resin layer.

[Claim 7] The layered product according to claim 2 characterized by preparing an interlayer and an elastic body layer between said oriented film and said heat-sealing resin layer.

[Claim 8] The layered product according to claim 2 characterized by preparing an interlayer and a gas cutoff nature resin layer between said oriented film and said heat-sealing resin layer.

[Claim 9] The layered product according to claim 2 to 8 characterized by adjoining said oriented film and preparing an adhesives layer among said oriented films and said interlayers.

[Claim 10] A consistency 0.915 - 0.940 g/cm<sup>3</sup> Ethylene and alpha olefine copolymer, A 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymer, The hydrogenation object of a 10 - 50 % of the weight of styrene, and 90 - 50 % of the weight [ of butadienes ] styrene butadiene block copolymer, The layered product according to claim 3 to 9 characterized by being the interlayer formed with at least three or more sorts of resin which contains ethylene, an alpha olefin copolymer, and a styrene butadiene block copolymer at least among high impact polystyrene.

[Claim 11] Said middle class is monolayer structure and they are a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Ethylene and 10 - 90 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers 10 - 50 % of the weight of styrene, and the hydrogenation object 1 of a 90 - 50 % of the weight [ of butadienes ] styrene butadiene block copolymer - 30 weight sections, The layered product according to claim 10 characterized by being formed with the resin constituent with which high impact polystyrene 1 - 50 weight sections are added.

[Claim 12] Said middle class is monolayer structure and they are a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Ethylene and 10 - 90 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 90 - 10 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers The layered product according to claim 10 characterized by being formed with the resin constituent with which the hydrogenation object 1 of a 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [ of butadienes ] styrene butadiene block copolymer - 30 weight sections are added.

[Claim 13] Said middle class is monolayer structure and they are a consistency 0.915 - 0.940 g/cm<sup>3</sup>.

Layered product according to claim 10 characterized by being formed to the resin constituent 100 weight section which consists of ethylene and 10 - 90 % of the weight of alpha olefin copolymers, and 90 - 10 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers with the resin constituent with which 1 - 50 % of the weight of high impact polystyrene is added.

[Claim 14] Said interlayer consists of two-layer structure of the 1st resin layer located in the aforementioned oriented film side, and the 2nd resin layer located in said heat sealant layer. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Ethylene and 10 - 90 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 90 - 10 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers The layered product according to claim 10 characterized by being what currently formed with the resin constituent with which the hydrogenation object 1 of a 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [ of butadienes ] styrene butadiene block copolymer - 30 weight sections are added.

[Claim 15] Said interlayer consists of two-layer structure of the 1st resin layer located in said oriented film side, and the 2nd resin layer located in said heat sealant layer. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Ethylene and 10 - 90 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 90 - 10 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers The layered product according to claim 10 characterized by being what currently formed with the resin constituent with which high impact polystyrene 1 - 50 weight sections are added.

[Claim 16] Said interlayer consists of two-layer structure of the 1st resin layer located in said oriented film side, and the 2nd resin layer located in said heat sealant layer side. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Ethylene and 10 - 90 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 90 - 10 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers 10 - 50 % of the weight of styrene, and the hydrogenation object 1 of a 90 - 50 % of the weight [ of butadienes ] styrene butadiene block copolymer - 30 weight sections, The layered product according to claim 10 characterized by being what currently formed with the resin constituent with which high impact polystyrene 1 - 50 weight sections are added.

[Claim 17] The 1st resin layer and the 2nd resin layer to which said interlayer is located in said oriented film side in order, And it consists of a three-tiered structure with the 3rd resin layer located in said heat sealant layer. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Ethylene and 10 - 90 % of the weight of alpha olefine copolymers, It is formed with a 90 - 10 % of the weight [ of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight / of butadienes / styrene butadiene block copolymers ] resin constituent. Said 3rd resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Ethylene and 10 - 90 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 90 - 10 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers The layered product according to claim 10 characterized by being what currently formed with the resin constituent with which the hydrogenation object 1 of a 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [ of butadienes ] styrene butadiene block copolymer - 30 weight sections are added.

[Claim 18] The 1st resin layer and the 2nd resin layer to which said interlayer is located in said extension resin layer side in order, And it consists of a three-tiered structure with the 3rd resin layer located in said heat sealant layer. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Ethylene and 10 - 90 % of the weight of alpha olefine copolymers, It is formed with a 90 - 10 % of the weight [ of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight / of butadienes / styrene butadiene block copolymers ] resin constituent. Said 3rd resin layer A consistency 0.915 - 0.940 g/cm<sup>3</sup> Ethylene and 10 - 90 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 90 - 10 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers The layered product according to claim 10 characterized by being what currently formed with the resin constituent with which high impact polystyrene 1 - 50 weight sections are

added.

[Claim 19] The 1st resin layer and the 2nd resin layer to which said interlayer is located in said oriented film side in order, It consists of a three-tiered structure with the 3rd resin layer located in said heat sealant layer. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Ethylene and 10 - 90 % of the weight of alpha olefine copolymers, It is formed with a 90 - 10 % of the weight [ of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight / of butadienes / styrene butadiene block copolymers ] resin constituent. Said 3rd resin layer A consistency 0.915 - 0.940 g/cm<sup>3</sup> Ethylene and 10 - 90 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 90 - 10 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymers 10 - 50 % of the weight of styrene, and the hydrogenation object 1 of a 90 - 50 % of the weight [ of butadienes ] styrene butadiene block copolymer - 30 weight sections, The layered product according to claim 10 characterized by being what currently formed with the resin constituent with which high impact polystyrene 1 - 50 weight sections are added.

[Claim 20] Said middle class is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Layered product according to claim 3 to 9 characterized by being formed with the resin constituent which consists of ethylene and 10 - 90 % of the weight of alpha olefin copolymers, a 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymer 90 - the 10 weight sections.

[Claim 21] Said middle class is a consistency 0.915 - 0.940 g/cm<sup>3</sup>. Layered product according to claim 3 to 9 characterized by being formed with the resin constituent which consists of 90 - 10 % of the weight of hydrogenation objects of ethylene and 10 - 90 % of the weight of alpha olefin copolymers, and a 10 - 50 % of the weight of styrene, and 90 - 50 % of the weight [ of butadienes ] styrene butadiene block copolymer.

[Claim 22] the line to which, as for at least one layer, glass-transition temperature exceeds 40 degrees C among said interlayers -- the layered product according to claim 3 to 21 characterized by being formed with saturated polyester.

[Claim 23] The layered product according to claim 1 to 22 to which said heat-sealing nature resin layer is characterized by including at least one sort of polyester, polyurethane, a vinyl chloride and a vinyl acetate system copolymer, acrylic resin, and an ethylene-vinylacetate copolymer.

[Claim 24] The layered product according to claim 1 to 23 to which said heat-sealing nature resin layer is characterized by including an inorganic system particle in the range of the 1 - 200 weight section to the heat-sealing nature resin 100 weight section.

[Claim 25] The aforementioned inorganic system particle SiO<sub>2</sub>, aluminum 2O<sub>3</sub>, and TiO<sub>2</sub>, Fe 2O<sub>3</sub>, ZnO, SnO<sub>2</sub>, CeO<sub>2</sub>, NiO, PbO, S<sub>2</sub> Cl<sub>2</sub>, ZnCl<sub>2</sub>, FeCl<sub>2</sub>, CaCO<sub>3</sub>, and MgCO<sub>3</sub>, B-2 O<sub>3</sub>, water and a silicic acid anhydride, a water calcium silicate, hydrated Al silicates, The layered product according to claim 24 characterized by being at least one sort of an aluminum silicate, a magnesium silicate, a calcium silicate, a barium sulfate, a lead sulfate, strontium sulfate, and an aluminum hydroxide.

[Claim 26] The layered product according to claim 1 to 23 characterized by said heat-sealing nature resin layer containing the organic system particle or organic system spherical bead which consists of at least one sort of acrylic, a polyolefine system, a polystyrene system, and a polyester system in the range of the 1 - 200 weight section to the binder 100 weight section.

[Claim 27] The layered product according to claim 1 to 26 characterized by for surface resistivity being [ for said static electricity diffusion layer ] within the limits of 10<sup>8</sup>-10<sup>12</sup>ohms / \*\*, and the charge damping time being 2 or less seconds.

[Claim 28] The heat sealant layer according to claim 2 to 27 characterized by preparing an acid-resisting layer in said oriented film.

[Claim 29] The layered product according to claim 28 characterized by preparing an antistatic layer between said oriented films and said acid-resisting layers.

[Claim 30] The layered product according to claim 2 to 27 characterized by preparing an antistatic layer in said oriented film.

[Claim 31] The layered product according to claim 30 characterized by preparing an acid-resisting layer between said oriented films and said antistatic layers.

[Claim 32] The layered product according to claim 2 to 31 characterized by for total light transmission being 75% or more, and a haze value being 50% or less.

[Claim 33] Lid material characterized by consisting of a layered product according to claim 2 to 31, and heat sealing in the container made of synthetic resin at said static electricity diffusion layer side.

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[Translation done.]

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention belongs to the layered product using HS layer of lid material and it which are used for seal of the synthetic-resin container which is applied to the layered product and lid material which used a heat sealant layer (it is hereafter indicated as HS layer), and this, especially contains medical related goods, such as components for liquid crystal displays and a liquid crystal product, and a syringe, drugs, the components for automobiles, etc. in a semi-conductor, IC components and these products, and a list.

[0002]

[Description of the Prior Art] Various components solid or more liquefied than before, food, and industrial components are contained in a synthetic-resin container, opening is sealed by lid material or sealing with a bag body, and circulating and keeping it is performed. For example, electronic parts are contained to many crevices established in the carrier tape, and the carrier tape which heat seals it by lid material (it is also called a covering tape) as covers a crevice is used. Such a carrier tape is usually formed using the ingredient with easy sheet forming, such as a polyvinyl chloride, polystyrene, polyester, and a polycarbonate. Moreover, the lid material used for a carrier tape becomes, and consists of layered products by which HS layer was prepared in the biaxially oriented film and the field of one of these. And in the mounting process of electronic parts, in order to take out the electronic parts contained by the crevice of a carrier tape, it is required that lid material can exfoliate easily.

[0003] Furthermore, there was a danger that degradation of electronic parts and destruction would arise, with static electricity generated when the electronic parts contained contact the crevice of a carrier tape, or lid material or exfoliate lid material. A means to prevent generating of this static electricity was required of a carrier tape or lid material. Scouring on a tape, and it being crowded or carrying out coating of a conductive carbon particle, the electric conduction powder of a metallic oxide, and the metal particle to a means to prevent generating of static electricity of a carrier tape is performed. Moreover, scouring on a tape, and it being crowded or carrying out coating of antistatic agents, such as a surface active agent, the electric conduction powder of a metallic oxide, a conductive carbon particle, and the metal particle to HS layer which contacts electronic parts and directly is carried out to a means to prevent generating of static electricity in lid material. Especially as for the thing which mixed in HS layer the impalpable powder which electric-conduction-ized metallic oxides (tin oxide, zinc oxide, etc.), transparency is often used comparatively.

[0004]

[Problem(s) to be Solved by the Invention] However, during transportation of this carrier tape and storage, as for the lid material which heat sealed the carrier tape which contained contents, predetermined peel strength is required so that lid material may exfoliate and electronic parts may not be omitted. And when the difference (it is hereafter indicated as a zip rise) of the maximum of this peel strength and the minimum value was too large and it exfoliated lid material at the mounting process of electronic parts, the carrier tape vibrated and there was a problem that electronic parts caused the accident which jumps out of the crevice of a carrier tape. Therefore, although lid material was heat sealed by the carrier tape and sufficient reinforcement and it was required at the time of mounting of electronic parts that a zip rise should have been small, the lid material which mixed conductive impalpable powder etc. in the conventional HS layer had the problem that a low zip rise was not obtained.

[0005] Moreover, the distribution when fabricating HS layer, although it had comparatively good transparency was difficult for the lid material which mixed the conductive powder of a metallic oxide in HS

layer, and in order to acquire the transparency which is extent which can perform the visual inspection of the contained electronic parts, it had the problem that the skilled distributed technique was required and caused the rise of a manufacturing cost.

[0006] Furthermore, HS layer which carried out coating of the heat-sealing nature resin containing a surfactant had the problem that it could not become the cause of a poor seal and the antistatic effectiveness which the surface state of HS layer was changed daily, heat sealing became unstable, and the static electricity spreading effect depended for with the temperature under storage and humidity, was easy, and was stabilized could not be acquired. This invention is made in view of such a situation, and offers a technical problem the lid material which has a layered product with the outstanding antistatic property, the stable adhesive property to a synthetic-resin container, good detachability, and the outstanding antistatic effectiveness.

[0007]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, HS layer of this invention considered the static electricity diffusion layer prepared in one field of a heat-sealing nature resin layer as the configuration which it becomes from a conductive particle and a binder. Moreover, it is the configuration which the layered product which prepared HS layer of this invention consists of what prepared the oriented film in the static electricity diffusion layer forming face of the above-mentioned heat-sealing nature resin layer, and the field of the opposite side, and heat seals a synthetic-resin container the aforementioned static electricity diffusion layer side.

[0008] The above-mentioned static electricity diffusion layer prepared in one field of HS layer consists of a conductive particle and a binder, and has the generating prevention effectiveness of good static electricity of the electronic electrical conduction mold independent of temperature and humidity. Therefore, the coating liquid for the static electricity diffusion layers is 0.05 - 0.5 g/m<sup>2</sup>. The transparency of a layered product is not checked with the amount of coating, and it does not have a bad influence on the heat-sealing nature of HS layer. And the lid material which consists of a layered product which prepared the oriented film in the field in which the static electricity diffusion layer of the above-mentioned HS layer was formed, and the field of the opposite side has the visibility of the outstanding static electricity generating prevention effectiveness and contents. And the lid material which consists of a layered product which prepared the oriented film in the field in which the static electricity diffusion layer of the above-mentioned HS layer was formed, and the field of the opposite side has the visibility of the outstanding static electricity generating prevention effectiveness and contents. Since the carrier tape which heat sealed the synthetic-resin container the static electricity diffusion layer side is constituted so that exfoliation or cohesive failure in HS layer can be performed between the layers of an interlayer 25 and the HS layer 1 as shown in drawing 8 or drawing 9, regardless of heat-sealing reinforcement, exfoliations of the lid material 51 are stability and the thing which can be performed certainly.

[0009] The heat-sealing nature resin layers 2, 12, 22, and 62 which constitute the HS layer 1 of this invention An ethylene-vinylacetate copolymer, ethylene and vinyl acetate acrylic, an olefin system and an elastomer system (the block copolymer of styrene styrene butadiene rubber --) The block copolymer of styrene isobutylene styrene, the block-copolymer polyamide system of styrene ethylene butylene styrene, Thermoplastics, such as a polyester system and a polyurethane system, can be formed in one sort or two sorts or more of combination of the hot melt adhesive made into a subject, the thermoplastics shown in Table 1 thru/or 3, or thermoplastic elastomer.

[0010]

[Table 1]

表 1 熱可塑性樹脂

[illegible]

[0011]

[Table 2]



表 2 熱 可 塑 性 樹 脂

|                                                                                                                                                                        |                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| エチレン・エチルアクリレート共重合体 (E E A)<br>エチレン・アクリル酸共重合体 (E A A)<br>エチレン・メタアクリル酸共重合体 (E M A A)<br>エチレン・メチルメタアクリレート共重合体 (E M M A)<br>エチレン・メチルアクリレート共重合体 (E M A)                     | エチレン・アクリル系共重合体 |
| ポリアクリロニトリル<br>エチレン・ビニルアルコール共重合体<br>ポリビニルアルコール                                                                                                                          | ガス遮断性熱可塑性樹脂    |
| ポリアクリル酸<br>ポリアクリルアミド<br>ポリビニルピロリドン<br>ポリビニルメチルエーテル<br>ビニルアルコール・アクリル酸共重合体                                                                                               | 吸 湿 系 樹 脂      |
| エチレン・アクリル酸共重合体 (E A A)<br>イオン架橋オレフィン共重合体<br>無水マレイン酸グラフトポリエチレン<br>無水マレイン酸グラフトポリプロピレン<br>アクリル酸グラフトポリオレフィン<br>エチレン・酢酸ビニル共重合体<br>共重合ポリエステル<br>共重合ポリアミド<br>塩化ビニル・酢酸ビニル系共重合体 | 接 着 性 樹 脂      |
| ポリアセタール<br>ポリエーテルスルホン (サルフォン)<br>ポリフェニレンスルファイド<br>ポリフェニレンオキシド<br>ポリエーテルエーテルケトン<br>アミド<br>液晶ポリマー                                                                        | エンジニアリングプラスチック |
| ポリカーボネート<br>ポリメタアクリル酸メチル<br>メタアクリル酸メチル・スチレン共重合体<br>ポリアリレート<br>ポリウレタン                                                                                                   |                |
| 上記の各樹脂系発泡物及び水素添加物及びエラストマー                                                                                                                                              |                |
| エチルセルロース<br>酢酸セルロース<br>プロピオン酸セルロース<br>硝酸セルロース                                                                                                                          | 天 然 高 分 子      |

[0012]

[Table 3]

表 3 熱可塑性エラストマー

| ハードセグメント                                                                                                             | ソフトセグメント                                                                                                                                     | 構 造                                       |
|----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| スチレン系：<br>ポリスチレン (S)                                                                                                 | ポリブタジエン (B)<br>ポリイソブチレン (I)<br>エチレン・ブチレン共重合ゴム (EB)<br>エチレン・プロピレン共重合ゴム (EP)<br>(SEBS=SBS水添、SEPS=SIS水添)                                        | SBS<br>SIS<br>SEBS<br>SEPS<br>A<br>B<br>C |
| 塩化ビニル系：<br>ポリ塩化ビニル                                                                                                   | ポリ塩化ビニル<br>ニトリルゴム (NBR) とのアロイ<br>ウレタンとの共重合体又はアロイ<br>ポリエステルとのアロイ                                                                              | D                                         |
| オレフィン系：<br>ポリエチレン<br>ポリプロピレン                                                                                         | エチレン・プロピレン共重合ゴム<br>ブチルゴム<br>エチレン・酢酸ビニル共重合体 (EVA)<br>エチレン・アクリル酸エチル共重合体 (EEA)<br>エチレン・グリシジリルメタアクリレート共重合体 (EGMA)<br>ニトリルゴム (NBR)<br>アクリルゴム (AR) | D                                         |
| ポリエステル系：<br>ポリポリエチレン<br>テレタレート<br>ポリポリブチレン<br>テレタレート                                                                 | 脂肪族ポリエーテル<br>ポリメチレングリコールとテレフタル酸との縮合物 (PTMEGT)<br>脂肪族ポリエステル<br>ポリカプロラクトンから構成されるブロック共重合体                                                       | C                                         |
| ポリアミド系：<br>ポリアミド 6<br>ポリアミド 6 6<br>ポリアミド 6 10<br>ポリアミド 6 12<br>ポリアミド 1 1<br>ポリアミド 1 1 2                              | ポリエーテル<br>ポリエーテルグリコール (PEG)<br>ポリプロピレングリコール (PPG)<br>ポリテトラメチレングリコール (PTMG)<br>ポリエステル                                                         | C                                         |
| ポリウレタン系：<br>ポリウレタン                                                                                                   | ポリカーボネート系ポリオール<br>エーテル系ポリオール<br>エカプロラクトン系ポリオール<br>アジペート系ポリオール<br>炭酸エステル系                                                                     | C                                         |
| その他：<br>シンジホー-1, 2、<br>-ポリブタジエン<br>ポリエチレン<br>イオンクラスター<br>(アイオノマー)<br>トランス-<br>ポリイソブチレン<br>フッ素樹脂<br>ポリエチレン<br>ポリプロピレン | アタクチック-1, 2-ポリブタジエン<br>1,1-イソブチレン・イソブレン共重合ゴム<br>アモルファスポリエチレン<br>アモルファスポリイソブレン<br>フッ素ゴム<br>天然ゴム                                               | C<br>E<br>F<br>C<br>A、E<br>D              |

構造モデル:

A: トリブロック共重合体      B: スターポリマー  
C: マルチブロック共重合体      D: 樹脂・ゴムブレンド部分架橋  
E: グラフト共重合体      F: イオン架橋体

[0013] A thing desirable as a heat-sealing nature resin layer is formed with the constituent which is mainly concerned with polyurethane, polyester, a vinyl chloride and a vinyl acetate system copolymer, acrylic resin, and the thermoplastics that consists of at least one sort of an ethylene-vinylacetate copolymer. Moreover, the combination of two or more sorts of thermoplastics can mention the mixed varnish (as for a mixed ratio, 9:1-4:6 are desirable) of polyurethane, and a vinyl chloride and a vinyl acetate system copolymer, the mixed varnish (as for a mixed ratio, 1:1 to 9.5:0.5 is desirable) of polyester, and a vinyl chloride and a vinyl acetate system copolymer, the mixed varnish (as for a mixed ratio, 1:9 to 9.5:0.5 is desirable) of acrylic resin, and a vinyl chloride and a vinyl acetate system copolymer, etc.

[0014] In order that a zip rise may keep it small greatly [ heat-sealing reinforcement ], as for the heat-sealing nature resin layers 2, 12, 22, and 62, it is desirable to include the inorganic system particle shown below, an organic system particle, or an organic spherical bead in the range of the 1 - 200 weight section to the thermoplastics 100 weight section. Transparency cannot be acquired, if the content of the above-mentioned particle cannot do so the effectiveness added under in 1 weight section and exceeds the 200 weight sections. 0.001-200 micrometers of magnitude of an inorganic system particle, an organic system particle, or an organic spherical bead are 0.01-10 micrometers preferably in a primary particle. Thus, by adding an inorganic system particle, an organic system particle, or an organic spherical bead in a heat-sealing nature resin layer The effectiveness which makes small stress which can make small expansion by the heat and pressure of heat-sealing ingredients (resin etc.) at the time of heat sealing, and contraction, and remains in

the thermoplastics in HS layer, It is thought that the zip rise when exfoliating can be made small from the effectiveness which can make a film strength (especially shear strength, tensile strength) smaller than HS layer formed only from thermoplastics.

[0015] To the above-mentioned inorganic system particle,  $\text{SiO}_2$ , aluminum  $2\text{O}_3$ , and  $\text{TiO}_2$ ,  $\text{Fe}_2\text{O}_3$ ,  $\text{ZnO}$ ,  $\text{SnO}_2$ ,  $\text{CeO}_2$ ,  $\text{NiO}$ ,  $\text{PbO}$ ,  $\text{S}_2\text{Cl}_2$ ,  $\text{ZnCl}_2$ ,  $\text{FeCl}_2$ ,  $\text{CaCO}_3$ , and  $\text{MgCO}_3$ ,  $\text{B}_2\text{O}_3$ , water and a silicic acid anhydride, a water calcium silicate, hydrated Al silicates, One sort of an aluminum silicate, a magnesium silicate, a calcium silicate, a barium sulfate, a lead sulfate, strontium sulfate, and an aluminum hydroxide or two sorts or more can be used. Moreover, one sort of the above-mentioned organic system particle, the organic system particle which becomes an organic spherical bead from an acrylic resin system, a polyolefine system, a polystyrene system, or a polyester system, and an organic spherical bead, or two sorts or more can be used.

[0016] Especially the thickness of the above-mentioned heat-sealing nature resin layers 2, 12, 22, and 62 has desirable 0.5-30 micrometers 0.1-60 micrometers. When the thickness of a heat-sealing nature resin layer is less than 0.1 micrometers, it is difficult to form a heat-sealing nature resin layer. Moreover, when the thickness of a heat-sealing nature resin layer exceeds 60 micrometers, the HS layer 1, a layered product 11, and the 21 whole become thick too much, the elasticity of a layered product becomes strong, and management worsens. And the need heating value when heat sealing lid material becomes large, high-speed heat sealing becomes difficult, and productivity is fallen.

[0017] In the condition of having stuck the film after film production with the oriented film, or having dissolved or distributed to the oriented film at the melting condition or the solvent, coating of the heat-sealing nature resin layers 2, 12, and 22 may be carried out, and they may be formed.

[0018] The static electricity diffusion layers 3, 13, 23, and 63 of the HS layer 1 of this invention are the coating liquid which distributed to the vehicle the conductive particle which gave conductivity to sulfides, such as metallic oxides, such as tin oxide, antimony oxide, a zinc oxide, indium oxide, and titanium oxide, zinc sulfide, copper sulfide, a cadmium sulfide, a nickel sulfide, and sulfuration palladium, a barium sulfate, etc., and particles, such as an organic silicon compound, for example, by the gravure reversing method 0.05 - 0.5 g/m<sup>2</sup> Coating is carried out. 0.05 g/m<sup>2</sup> The antistatic effectiveness is not enough in it being the following, and it is 0.5 g/m<sup>2</sup>. If it exceeds, it will also become the cause which it not only falls the transparency of a layered product, but checks heat sealing. That whose primary mean particle diameter of a conductive particle is 0.01-10 micrometers is desirable, and can form the layered product of 108-1012ohms of surface resistivity, and \*\* of this invention.

[0019] Although thermoplastics and the elastomer which were indicated to Table 1, 2, or 3 can be used for the ingredient used for the binder of the static electricity diffusion layers 3, 13, 23, and 63 of this invention, especially desirable things are a polyester system, urethane system resin, acrylic resin, and a vinyl chloride and a vinyl acetate system copolymer. And a distributed stabilizer, an antiblocking agent, etc. can be added if needed.

[0020] As for the rate of the conductive particle contained in the static electricity diffusion layer 3, it is desirable that it is 10 - 85 % of the weight. The antistatic effectiveness is not enough in it being less than 10 % of the weight, and if it exceeds 85 % of the weight, a layer will stiffen, transparency and heat-sealing nature will be spoiled stability not only falls, but, and it is not desirable.

[0021] The charge damping time taken for the static electricity diffusion layer 3 of this invention to have the surface resistivity in the range of 108-1012ohms / \*\* under 23 degrees C and 50% of relative humidity, and to decrease 99% from 5000V under 23-degree-C \*\*5-degree-C and relative humidity 12\*\*3% does so the outstanding antistatic effectiveness for 2 or less seconds. If the above-mentioned surface resistivity exceeds 1012ohms / \*\*, it will become difficult the static electricity spreading effect's falling extremely and to prevent electronic parts from the static electricity destruction. Moreover, 107 In the case of under omega/\*\*, the static electricity diffusion layer will be established superfluously, and the evil in which the transparency of a layered product falls or heat-sealing nature is checked may be generated in it. Furthermore, 105 If it becomes the following of omega/\*\*, the electrical and electric equipment may energize from the exterior to electronic parts through lid material, and there is a danger that electronic parts will be destroyed electrically. On the other hand, when the charge damping time which is the standard of the diffusion rate of the charge generated with static electricity exceeds 2 seconds, an electric spreading effect gets extremely bad and it becomes difficult to protect electronic parts from static electricity. In addition, the above-mentioned charge damping time is measured based on MIL-B-81705C which is U.S. Military Standard.

[0022] The oriented films 14, 24, and 64 which form the HS layer 1 of this invention and constitute layered products 11 and 21 Polyester, such as polyethylene terephthalate and polyethylenenaphthalate, Polyamides,

such as polyolefines, such as polypropylene, nylon 6, or Nylon 66, A polycarbonate, polyimide, polyether sulphone, a polyether ketone, It can form with one shaft or biaxially oriented films, such as polyether imide, polyphenylene sulfide, polyarylate, the polyester ether, polyamidoimide, all aromatic polyamide, Pori parabanic acid, polyoxy diazole, and the poly hydantoin. Thus, thermal resistance can be given to a layered product by preparing an oriented film. The thickness of an oriented film can be suitably set up according to the purpose of use and the quality of the material of a layered product, and is usually 6-100 micrometers. Moreover, oriented films 14, 24, and 64 perform surface treatment, such as corona discharge treatment, plasma treatment, and sandblasting processing, to the field with the heat-sealing nature resin layer 2 or the middle class 25 to paste up if needed, and can strengthen adhesion. And an oriented film can be used as the base material which carries out coating of the polyvinylidene chloride and polyvinyl alcohol as a gas cutoff resin layer although illustration is not carried out, or carries out the laminating of the film of ethylene and a vinyl acetate copolymer saponification object through adhesives, and forms a layered product.

[0023] The adhesive resin layer used for thermofusion resin although illustration is not carried out performs adhesion with an oriented film, an interlayer, or HS layer. An adhesive resin layer is chosen from the low density polyethylene which can perform melting extruding, and the thermoplastics to which 0.915-0.940g /of consistencies is made as for melting extrusion coats, such as the ethylene and the alpha olefin copolymer of 3 (g/cm<sup>3</sup> which is [ following ] the unit of a consistency omits), an ethylene-vinylacetate copolymer, an ethylene acrylic-acid copolymer, an ethylene acrylic ester copolymer, an ionomer, and polypropylene, cm, and carries out a laminating by the sandwiches lamination. The thickness of the adhesive resin layer which carries out an extrusion coat is 10-60 micrometers, and can also serve as an interlayer in this resin layer. When performing processing by the sandwiches lamination, a primer layer is prepared in an oriented film in order to stabilize firmly adhesion with an oriented film and an adhesion resin layer. A primer layer prepares solutions, such as polyethyleneimine, polybutadiene, an organic titanium compound, an isocyanate compound, and polyurethane, by the thickness of 0.1-2 micrometers, and extrudes and carries out the coat of the adhesive resin.

[0024] Moreover, it can replace with the sandwiches lamination by thermoplastics, and oriented films 14 and 24, an interlayer 25, or the HS layer 1 can be pasted up by processing by the dry lamination by the usual adhesives.

[0025] Interlayers may be any of monolayer structure and multilayer structure, and can form with one sort or two sorts or more of combination of thermoplastics shown in Table 1. A desirable interlayer's gestalt is shown especially below.

[0026] For the middle class of a monolayer, a consistency is the ethylene and alpha olefine copolymer of 0.915-0.940 (it sets on these specifications henceforth). it is indicated as an E-O copolymer. A 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] styrene butadiene block copolymer (it is henceforth indicated as a S-B copolymer.) The hydrogenation object of a 10 - 50 % of the weight of styrene, and 90 - 50 % of the weight [ of butadienes ] styrene butadiene block copolymer (it is henceforth indicated as a S-B copolymer water garnish.) And it is formed with at least three or more sorts of resin which contains an E-O copolymer and a S-B copolymer at least among high impact polystyrene (it is henceforth indicated as HIPS).

[0027] The E-O copolymers used for the middle class's formation are ethylene and a copolymer with a butene, a pentene, a hexene, a heptene, octene, 4-methyl pentene 1, etc. when the consistency of such an E-O copolymer exceeds less than 0.915 and 0.940, an interlayer's film production nature boiled and depended on combination with a S-B copolymer will fall, and it is not desirable.

[0028] If the adhesiveness of a film increases that the amount of the styrene which constitutes the S-B copolymer used for the middle class's formation is less than 50 % of the weight, and handling becomes difficult and it exceeds 90 % of the weight, the heat-sealing nature in low temperature will fall, and it is not desirable.

[0029] And the mixing ratio of said interlayer's E-O copolymer and a S-B copolymer influences greatly the peel strength when exfoliating, after heat sealing the lid material 51 which consists of a layered product 21 which used the HS layer 1 of this invention for the synthetic-resin container, and the transparency of lid material. Let the mixing ratios of the interlayer's E-O copolymer and S-B copolymer in this invention be 10 - 90 % of the weight of E-O copolymers, and 90 - 10 % of the weight of S-B copolymers. When a S-B copolymer exceeds [ an E-O copolymer ] 90 % of the weight less than 10% of the weight, an interlayer's 25 film production nature worsens, and the transparency of a layered product 21 and also the lid material 51 falls and is not desirable, either. Adhesion with an interlayer 25 and the HS layer 1 is weak in an E-O copolymer exceeding 90 % of the weight, and on the other hand, a S-B copolymer being less than 10 % of

the weight, and the peel strength of lid material will be less than a proper value, and it is not desirable.

[0030] When adding an interlayer 25 to an above-mentioned E-O copolymer and an above-mentioned S-B copolymer and forming with a S-B copolymer water garnish and four sorts of resin using HIPS, The resin constituent 100 weight section of 10 - 90 weight section, and the S-B copolymer 90 - 10 weight sections is received in the above-mentioned E-O copolymer. It is desirable to carry out 0-30 weight section addition of the S-B copolymer water garnish of styrene 10 - 50 weight sections, and a butadiene 90 - 50 weight sections, and to carry out 0-50 weight section addition of the HIPS. If the amount of a S-B copolymer water garnish exceeds 30 weight sections, the blocking resistance of the film obtained is inadequate and it is not desirable. When the rate of hydrogenation of a S-B copolymer water garnish is inadequate, and a butadiene component is high, tends to oxidize and forms an interlayer's 25 film, it becomes easy to generate a gel object. Moreover, when the non-hydrogenation object which does not hydrogenate a S-B copolymer is used, film production nature is bad and may be unable to form a film.

[0031] If the addition of HIPS exceeds 50 weight sections to the resin constituent 100 weight section of the above-mentioned E-O copolymer and a S-B copolymer, the transparency of the lid material using a layered product or this falls and is not desirable.

[0032] The middle class 25 may form to the resin constituent 100 weight section which consists of the 10 - 90 % of the weight of the aforementioned E-O copolymers, and 10 - 90 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers with the resin constituent containing three sorts of resin which carried out 0-30 weight section addition only of the S-B copolymer water garnish. Moreover, it can also form to the resin constituent 100 weight section which consists of 10 - 90 % of the weight of E-O copolymers, and 90 - 10 % of the weight of S-B copolymers with the resin constituent containing three sorts of resin which carried out 0-50 weight section addition only of the HIPS.

[0033] The middle class 25 of the monolayer structure of this invention can also form with the resin constituent with which the S-B copolymer of 50 - 90 % of the weight of styrene and 50 - 10 % of the weight of butadienes other than the above-mentioned configuration serves as the E-O copolymer 10 - 90 weight sections from 90 - 10 weight section. In this case, if the adhesiveness of a film increases that the amount of styrene of the S-B copolymer to be used is less than 50 % of the weight, and it is hard coming to deal with it and it exceeds 90 % of the weight, adhesion with HS layer in low temperature falls and is not desirable. And the mixing ratio of the E-O copolymer and S-B copolymer in an interlayer 25 influences greatly the peel strength when exfoliating, after heat sealing the lid material 51 in the synthetic-resin container 31, and the transparency of a layered product 21 or the lid material 51. When a S-B copolymer exceeds [ an E-O copolymer ] 90 % of the weight less than 10% of the weight, an interlayer's 25 film production nature gets worse, and transparency falls and is not desirable, either. Adhesion with an interlayer 25 and the heat-sealing nature resin layer 2 is weak in an E-O copolymer exceeding 90 % of the weight, and on the other hand, a S-B copolymer being less than 10 % of the weight, and the peel strength of lid material is not less [ a proper value ], and desirable.

[0034] The middle class of a monolayer can be formed from the resin constituent which consists of the E-O copolymer 10 - the 90 weight sections, and 10 - 50 % of the weight of styrene, and the 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish 90 - 10 weight sections. In this case, it falls [ the film production nature of the interlayer by combination with a S-B copolymer water garnish ] and is not desirable when the consistency of an E-O copolymer exceeds less than 0.915 and 0.940. Moreover, the adhesiveness of a film increases that the amount of styrene which constitutes a S-B copolymer water garnish is less than 10 % of the weight, and it is easy to generate and hard coming to deal with blocking. Moreover, if it exceeds 50 % of the weight, adhesion with the static electricity diffusion layer in low temperature worsens and is not desirable. An interlayer's transparency formed since a hydrogenation object had good compatibility not only with giving an interlayer 25 flexibility but an E-O copolymer becomes high. And the mixing ratio of an interlayer's 25 E-O copolymer and a S-B copolymer water garnish influences greatly the peel strength when exfoliating, after heat sealing the lid material 51 in a synthetic-resin container, and the transparency of a layered product 21 or the lid material 51. An E-O copolymer falls [ garnish / when a S-B copolymer water garnish exceeds 90 % of the weight ] only not only in an interlayer's film production nature and is not desirable less than 10% of the weight. On the other hand, an E-O copolymer exceeds 90 % of the weight, and when a S-B copolymer water garnish is less than 10 % of the weight, the adhesive strength of an interlayer 25 and the heat-sealing nature resin layer 2 is small, and it is not [ the peel strength of the lid material 51 will be less than a proper value, and ] desirable.

[0035] furthermore, the interlayer 25 of this invention -- glass transition temperature -- a line 40 degrees C or more -- it can also form with saturated polyester. glass transition temperature -- a line 40 degrees C or

more -- saturated polyester Alcoholic components, such as ethylene glycol, propylene glycol, 1,4-butanediol, 1, and 4 cyclohexane dimethanol, On the component by aromatic series dicarboxylic acid, such as aliphatic series dicarboxylic acid, such as an adipic acid and a sebacic acid, and a terephthalic acid, isophthalic acid, a diphenyl carboxylic acid, and a concrete target Ethylene glycol, a terephthalic acid and ethylene glycol, isophthalic acid, and a terephthalic acid, Copolycondensation polymers, such as 1 and 4 cyclohexane dimethanol, ethylene glycol and a terephthalic acid, propylene glycol, a terephthalic acid and propylene glycol, isophthalic acid, and a terephthalic acid, can be used. In addition, glass transition temperature was set as 40 degrees C or more, because it took into consideration that the environmental condition which uses a layered product was less than 40 degrees C.

[0036] If the thickness of the interlayer 25 of above-mentioned monolayer structure has desirable 3-100 micrometers, and film production nature is bad in less than 3 micrometers and it exceeds 100 micrometers, the heat-sealing nature of HS layer which constituted lid material will worsen.

[0037] The interlayer 25 of two-layer structure consists of the 1st resin layer and the 2nd resin layer, as shown in drawing 4, and a consistency forms 1st resin layer 25a with the ethylene and alpha olefine copolymer of 0.915-0.940, or different resin of a presentation from 2nd resin layer 25b.

[0038] A consistency can form 2nd resin layer 25b to the resin constituent 100 weight section which ethylene and 10 - 90 % of the weight of alpha olefin copolymers of 0.915-0.940, and a 50 - 90 % of the weight of styrene and 50 - 10 % of the weight [ of butadienes ] S-B copolymer become from 90 - 10 % of the weight from the resin constituent with which the 90 - 50 % of the weight [ of 10 - 50 % of the weight butadienes of styrene ] S-B copolymer water garnish 0 - 30 weight sections are added. Furthermore, 2nd resin layer 25b can also form HIPS with the resin constituent with which 0 - 50 weight section is added to the resin constituent 100 weight section which a consistency becomes from ethylene and 10 - 90 % of the weight of alpha olefin copolymers of 0.915-0.940, and 90 - 10 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers. A consistency 2nd resin layer 25b Ethylene and 10 - 90 % of the weight of moreover, alpha olefine copolymers of 0.915-0.940, As opposed to the resin constituent 100 weight section which consists of 90 - 10 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers A 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish can form with 0 - 30 weight section and the resin constituent with which the 0-50 weight section is added for HIPS. And the thickness of such the 1st resin layer and the 2nd resin layer is 2-60 micrometers, respectively.

[0039] The interlayer 25 of the three-tiered structure of this invention consists of 3rd resin layer 25c which touches 1st resin layer 25a, 2nd resin layer 25b, and HS layer as shown in drawing 5. As for 1st resin layer 25a, a consistency is formed with the ethylene and the alpha olefin copolymer, or the usual low density polyethylene of 0.915-0.940. The 2nd resin layer is a different presentation from the 3rd resin layer. A consistency Ethylene and 10 - 90 % of the weight of alpha olefine copolymers of 0.915-0.940, As opposed to the resin constituent 100 weight section which consists of 90 - 10 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers It can form with 10 - 50 % of the weight of styrene, the 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish 0 - 30 weight sections, and the resin constituent with which 0 - 50 weight section is added for HIPS.

[0040] 3rd resin layer 25c is formed to the resin constituent 100 weight section which consists of 10 - 90 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 90 - 10 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers with the resin constituent with which the 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish 0 - 30 weight sections are added. Moreover, HIPS is formed with the resin constituent with which 0 - 50 weight section is added to the resin constituent 100 weight section which 3rd resin layer 25c becomes from 10 - 90 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 90 - 10 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers. 3rd resin layer 25c 10 - 90 % of the weight of moreover, E-O copolymers of consistencies 0.915-0.940, As opposed to the resin constituent 100 weight section which consists of 90 - 10 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [ of butadienes ] S-B copolymers The 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [ of butadienes ] S-B copolymer water garnish is formed with 0 - 30 weight section and the resin constituent with which 0 - 50 weight section is added for HIPS.

[0041] The thickness of 1st resin layer 25a of the interlayer who consists of three layers of this invention, 2nd resin layer 25b, and 3rd resin layer 25c can be set as the range of 3-20 micrometers, respectively. And an interlayer 25 can create by the usual approaches, such as coincidence film production by extrusion

coating, and the dry lamination and co-extrusion method of a film.

[0042] showing [ the lid material 51 of a carrier tape which forms the layered product 21 of this invention ]-exfoliation gestalt as shown below GA -- it is desirable. That is, when exfoliating the lid material 51 heat sealed by the synthetic-resin container 31 shown in drawing 7, as shown in the exfoliation between the layers of the interlayer 25 and the HS layer 22 which are shown in drawing 8 (interlaminar peeling), or drawing 9, the gestalt which produces exfoliation by the cohesive failure in the HS layer 22 is desirable. In this case, peel strength is weaker than the bond strength of the heat-sealing nature resin layer 22 and the static electricity diffusion layer 23, or the heat-sealing reinforcement of the static electricity diffusion layer 23 and the synthetic-resin container 31, and it is desirable that it is in the range of 100-1200g / 15mm. When transporting a container after heat sealing lid material if peel strength is set to 100g / less than 15mm, exfoliation arises between the layers of an interlayer 25 and the heat-sealing nature resin layer 22, and there is a danger that contents will drop out. Moreover, it is [ a possibility that a synthetic-resin container may vibrate and contents may jump out ] and is not desirable when lid material will exfoliate, if peel strength exceeds 1200g / 15mm. Moreover, its 50g / 2mm or less are desirable, and if a zip rise exceeds 50g / 2mm, it is [ a possibility that a synthetic-resin container may vibrate and contents may jump out ] and is not desirable.

[0043] In addition, the above-mentioned peel strength is the value of the 180-degree exfoliation under 23 degrees C and the ambient atmosphere of 40% of relative humidity (exfoliation rate: 300 mm/min). Moreover, the zip rise in this case has the above-mentioned and a consent taste, and the difference of the maximum of the peel strength when carrying out the slit of the lid material heat sealed in the synthetic-resin container by 15mm to 2mm width, and exfoliating and the minimum value is said. Let the Measuring condition of the peel strength at this time be measurement die length of 20cm by the 180-degree exfoliation under the ambient atmosphere of 40% of 23-degree-C relative humidity (exfoliation rate: 300 mm/min).

[0044] The lid material 51 using the HS layer 1 of this invention can exfoliate certainly what fully gave heat and \*\* and heat sealed the HS layer 1 to the synthetic-resin container 31 in a low zip rise from a synthetic-resin container.

[0045] As shown in drawing 6 and drawing 7, the layered product 21 (lid material 51 shown in drawing 6) shown in the carrier tape 31 with a crevice 32 at drawing 3 is heat sealed. This heat sealing is performed to the flange 33 located in the both ends of a crevice 32 by the predetermined width H by the shape of Rhine. In the illustrated example, the slash section has shown the Rhine-like heat-sealing part H. The peel strength of the interlayer 25 of the lid material 51 and the HS layer 22 is 100-1200g / 15mm in this condition. This numeric value is smaller than the bond strength of the heat-sealing nature resin layer 22 and the static electricity diffusion layer 23, or heat-sealing reinforcement with the carrier tape 31. Next, when it exfoliates from the carrier tape 31, as the HS layer 1 and the opened lid material 52 are heat sealed by the carrier tape and the lid material 51 is shown in drawing 8 in the Rhine-like heat-sealing part H, exfoliation is produced between the layers of an interlayer 25 and the heat-sealing nature resin layer 2. Therefore, the lid material 51 exfoliates, where the Homo sapiens seal part H is left to the flange 33 of a carrier tape. Or in the Rhine-like heat-sealing part H, the cohesive failure within the heat-sealing nature resin layer 2 is produced, and as shown in the opened lid material 52 which the lid material 51 shows to drawing 9 while the part and the static electricity diffusion layer 23 of the heat-sealing nature resin layer 22 had been heat sealed by the carrier tape 31, it exfoliates. That is, the lid material 51 using the HS layer 1 of this invention combines the outstanding heat-sealing nature to the carrier tape 31, and the opposite property that it can exfoliate easily at the time of exfoliation.

[0046] the layered product of this invention -- the above-mentioned voice -- the voice which and also has an acid-resisting layer or an acid-resisting layer, and an antistatic layer in an oriented film -- it can also be made like. Drawing 10 and drawing 11 R> 1 are the cross-section schematic diagrams showing other modes of such this invention. The layered product 61 of drawing 10 had an oriented film 64, and the interlayers 65 and 62 and the static electricity diffusion layer 63 by which the laminating was carried out to order through the adhesives layer 66 in one field of this oriented film 64, and has formed the acid-resisting layer 67 in other fields of an oriented film. Moreover, as shown in drawing 11, the antistatic layer 68 can also be further formed between an oriented film and an acid-resisting layer.

[0047] The acid-resisting layer 67 suppresses that the shadow of the scattered reflection in a layered product or the light source is reflected, and aims at the ability to view the interior of a synthetic-resin container easily. Such an acid-resisting layer 67 can form one sort or two sorts or more of compounds using the coating distributed to the binder from calcium-fluoride, sodium-fluoride, lithium fluoride, magnesium fluoride, fluoride lanthanum, and neodium fluoride, cerous fluoride, a silicon dioxide, an aluminum oxide, 1



magnesium oxide, a thorium dioxide, lanthanum oxide, silicon monoxide, an oxidation yttrium, a zirconium dioxide, titanium oxide, cerium oxide, a zinc oxide, the bismuth oxide, a cadmium sulfide, etc. Or a film can also be directly produced to the oriented film containing the above-mentioned compound. The resin which constitutes a binder can mention polyester system resin, polyurethane system resin, acrylic resin, a vinyl chloride and a vinyl acetate system copolymer, polyvinyl chloride system resin, polyvinyl acetate system resin, phenol modified resin, xylene system resin, ketone system resin, cumarone indene system resin, petroleum system resin, terpene system resin, cyclized-rubber system resin, chlorinated-rubber system resin, an alkyd resin, polyamide system resin, polyvinyl alcohol system resin, polyvinyl-butylal system resin, a chlorination polypropylene resin, styrene resin, epoxy system resin, a cellulosic, etc. The coating approach which forms an acid-resisting layer is chosen from an air Doctor process, the blade coat method, the knife coat method, the rod coat method, the roll coat method, the gravure coat method, the screen coat method, the kiss coat method, the bead coat method, the slot orifice coat method, a spray method, etc. by the physical properties of the class of coating, a configuration, and a film. Moreover, there are a vacuum deposition method, the sputtering method, etc. in the approach of producing a film directly. A monolayer or multilayer any is sufficient as such an acid-resisting layer, and the thickness of an acid-resisting layer has desirable 0.01-0.5 micrometers.

[0048] An antistatic layer is prepared in the front face of lid material in order to prevent the dust by static electricity adhering. It is the layer which contains at least one sort of the antistatic agent of the conductive impalpable powder which performed electric conduction processing to the surfactant, the fatty-acid derivative, 4 functional-group nature silicon partial hydrolysate or the metal impalpable powder, the metallic-oxide system, metallic sulfide system, or sulfate system of either an anion system, the Kachin system, a non-ion system or both sexes, conductive carbon, a bis-ammonium system organic sulfur semi-conductor, an ultraviolet curing mold, or an electron ray hardening mold in the antistatic agent used for this antistatic layer.

[0049] As an anion system surfactant, the mixture of sulfated oil, soap, sulfation ester oil, a sulfation amide oil, the sulfates of an olefin, a fatty alcohol sulfate salt, an alkyl-sulfuric-acid ester salt, fatty-acid ethyl sulfonate, alkylbenzene sulfonate, naphthalene sulfonic acid, and formalin, succinate sulfonate, a phosphoric ester salt, etc. can be mentioned.

[0050] As a cation system surfactant, there are a primary amine salt, a tertiary amine salt, the 4th class ammonium compound, a pyridine derivative, etc.

[0051] There are the ethyleneoxide addition product of the partial fatty acid ester of polyhydric alcohol and fatty alcohol, the ethyleneoxide addition product of a fatty acid, aliphatic series amino or an ethyleneoxide addition product of a fatty-acid amide, an ethyleneoxide addition product of alkylphenol, an ethyleneoxide addition product of an alkyl naphthol, an ethyleneoxide addition product of the partial fatty acid ester of polyhydric alcohol, etc. in a non-ion system surface active agent.

[0052] A carboxylic-acid derivative, an imidazoline derivative, etc. can be mentioned to an amphoteric surface active agent.

[0053] An antistatic agent can be independently used for the antistatic layer 68 out of the above-mentioned antistatic agent (having no binder), and it can prepare it in an oriented film. Moreover, coating of the coating which distributed the antistatic agent can be carried out, and it can also be formed in the binder which can be used when forming the above-mentioned acid-resisting layer 67. Thus, the thickness of the antistatic layer to form has desirable 0.2-20 micrometers.

[0054] Moreover, the charge damping time from which it takes it for surface resistivity to be the range of 105-1012ohms / \*\*, and to decrease an antistatic layer 99% from 5000V under the condition of 12\*\*3% of 23 \*\*5-degree-C relative humidity to the bottom of the condition of 90% of 22-degree-C relative humidity does so the outstanding antistatic effectiveness for 2 or less seconds. In addition, in the above-mentioned lid material 61, since an oriented film 64, the adhesives layer 66, the interlayer 65, the HS layer 62, and the static electricity diffusion layer 63 are the same as that of corresponding each class which constitutes the above-mentioned lid material 61, explanation is omitted.

[0055] The synthetic-resin container set as the use object of the lid material using the layered product of this invention A polyvinyl chloride, polystyrene, polyester (PET-G [ A-PET and ]) In order to give containers made of synthetic resin, such as PEN, PCTA, polypropylene, a polycarbonate, a polyacrylonitrile, and acrylonitrile-butadiene-styrene copolymer, or these antistatic nature There is a thing containing the antistatic agent of the conductive impalpable powder which gave conductivity to metallic oxides, such as a conductive carbon particle, a metal particle, tin oxide, a zinc oxide, and titanium oxide, an organic silicon system compound, various surface active agents, a bis-ammonium system organic sulfur semi-conductor, ultraviolet



rays, or an electron ray hardening mold. Moreover, what fabricated the polystyrene system resin sheet containing carbon black or the acrylonitrile styrene-butadiene-rubber copolymer sheet to one by the co-extrusion can be mentioned to one side or both sides of a polystyrene system resin sheet or an acrylonitrile styrene-butadiene-rubber copolymer sheet. Or the thing in which the conductive polymer was formed on the plastics front face can also be mentioned as conductive processing.

[0056] in order to give steam cutoff nature and gas cutoff nature to a package object -- lid material -- and -- or the layer which contains in a container mineral matter layers, such as metal aluminum which gives steam cutoff nature and gas cutoff nature at a synthetic-resin container, absorptivity resin, and an oxygen absorbent can be prepared, or the container formed with glass, a metal, etc. can also be used.

[0057] Hereafter, the layered product of this invention is further explained to the concrete target which formed in lid material at a detail based on an example.

[0058] (Example of a comparison 1) To the corona treatment side of the axial oriented film 24 (Toyobo Co., Ltd. make a biaxial-stretching polyester film E7118 one side static free and one side corona treatment type) with a thickness of 25 micrometers 1st resin layer 25a which a consistency becomes from the E-O copolymer (ULTZEX by Mitsui Petrochemical Industries, Ltd. 3550A) of 0.935, 2nd resin layer 25b to which a S-B copolymer (Asa FREX 810 by Asahi Chemical Industry Co., Ltd.) becomes [said E-O copolymer] 50 % of the weight from 50 % of the weight, and said E-O copolymer 50 % of the weight, As opposed to the resin constituent 100 weight section which said S-B copolymer becomes from 50 % of the weight A S-B copolymer water garnish (Tough tech [by Asahi Chemical Industry Co., Ltd.] H1D41) 1st resin layer 25a of the interlayer 25 of a co-extrusion multilayer film with a thickness [total] of 30 micrometers it is thin from 3rd resin layer 25c by which 17 weight sections and the HIPS (Styron by Asahi Chemical Industry Co., Ltd. 475D) 50 weight section are added The dry lamination was carried out through the adhesives layer 26, and the base material 27 for lid material shown in drawing 5 was constituted. Subsequently, the lid material of the example 1 of a comparison which carries out 10-micrometer coating of the mixed varnish HKS-2 (trade name made from heat-sealing nature varnish THE Ink Tech) which consists of polyurethane, a vinyl chloride, and a vinyl acetate system copolymer to the field of 3rd layer 25c of the middle class 25 of the base material 27 for lid material, forms the HS layer 22 in it, and does not prepare the static electricity diffusion layer in it was constituted.

[0059] (Example 1) It is the coating liquid for the static electricity diffusion layers which distributed tin and an antimony system multiple oxide with a particle size of 0.3 micrometers to water-soluble polyester resin (Toyobo Co., Ltd. make), and distributed 40 % of the weight (solid content ratio) to homogeneity in the field of the heat-sealing nature resin layer 22 of the lid material created in the example 1 of a comparison with the gravure reversing method 0.1 g/m<sup>2</sup> Coating was carried out and the lid material 51 of an example 1 which established the static electricity diffusion layer 23 was constituted.

[0060] (Example 2) It is the coating liquid for the static electricity diffusion layers which was created in the example 1 of a comparison and which was used for the field of the heat-sealing nature resin layer 22 of lid material in the example 1 with the gravure reversing method 0.3 g/m<sup>2</sup> Coating was carried out and the lid material 51 of an example 2 was constituted like the example 1 with the HS layer 1 which established the static electricity diffusion layer 23.

[0061] (Example of a comparison 2) It is the coating liquid for the static electricity diffusion layers which was created in the example 1 of a comparison and which was used for the field of the heat-sealing nature resin layer 22 of lid material in the example 1 with the gravure reversing method 0.6 g/m<sup>2</sup> Coating was carried out and the lid material 51 of the example 2 of a comparison was constituted like the example 1 except having established many static electricity diffusion layers 23.

[0062] About the sample created in the example and the example of a comparison, total light transmission, surface resistivity, the charge damping time, and heat-sealing nature were measured on condition that the following whenever [haze].

- Whenever [haze], and total light transmission : measure by color computer SM[by Suga Test Instruments Co., Ltd.] -55C.

- Surface resistivity : measure by Mitsubishi Chemical Huy Lester IP under 23 degrees C and the ambient atmosphere of 50% of relative humidity.

- Charge damping time : the time amount taken to decrease 99% from 5000V under 23\*\*5 degrees C and the ambient atmosphere of 12\*\*3% of relative humidity is based on MIL-B-81705C, and it is Electro-Tec. System, STATIC made from Inc DECAY It measures by METER-406C.

- Peel strength : they are a polycarbonate base material (you pyrone film FE 2000 by Mitsubishi Gas Chemical Co., Inc.), and each sample 150 degrees C, 0.5 seconds, and 30 kgf/cm<sup>2</sup> It heat sealed on

conditions. and the bottom of 23 degrees C and the ambient atmosphere of 40% of relative humidity -- setting -- made in Oriental Baldwin -- 300mm [ in exfoliation rate ] exfoliation [ part 180 degree ] measurement for /is carried out in tensilon universal testing machine HTH-100. The measurement result about each sample and an exfoliation gestalt are shown in Table 4.

(Following margin)

[0063]

[Table 4]

| 試 料                                 | 実施例 1      | 実施例 2   | 比較例 1        | 比較例 2   |
|-------------------------------------|------------|---------|--------------|---------|
| 静電気拡散層<br>塗工量 $\text{g}/\text{m}^2$ | 0. 1       | 0. 2    | 0            | 0. 6    |
| ヘーズ値<br>%                           | 4 3        | 4 1     | 4 4          | 3 2     |
| 全光線透過率<br>%                         | 8 9        | 8 8     | 8 9          | 8 8     |
| 表面抵抗率<br>$\Omega/\square$           | $1 0^{10}$ | $1 0^8$ | $> 1 0^{13}$ | $1 0^7$ |
| 電荷減衰時間<br>秒                         | 0. 1       | 0. 1    | 0. 1         | 0. 1    |
| 剥離強度<br>$\text{gf}/15\text{mm}$     | 5 2 0      | 5 0 0   | 5 9 0        | 9 0     |
| 剥 離 形 態<br>(目 視)                    | 層間剥離       | 層間剥離    | 層間剥離         | 界面剥離    |

[0064]

[Effect of the Invention] HS layer constituted from a heat-sealing nature resin layer and a static electricity diffusion layer demonstrates the heat-sealing nature stabilized with the synthetic-resin container suddenly [ both ] also in the outstanding static electricity generating prevention effectiveness. and the interlayer formed with three or more sorts of resin which contains an E-O copolymer and a S-B copolymer at least among an E-O copolymer, a S-B copolymer, a S-B copolymer water garnish, and HIPS -- HS layer of this invention -- the prepared lid material does so the effectiveness of stabilizing and exfoliating between an interlayer and HS layer, when exfoliating with a carrier tape.

[Translation done.]

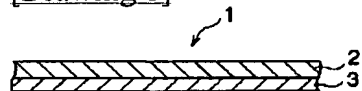
## \* NOTICES \*

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

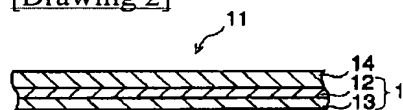
1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. \*\*\*\* shows the word which can not be translated.
3. In the drawings, any words are not translated.

## DRAWINGS

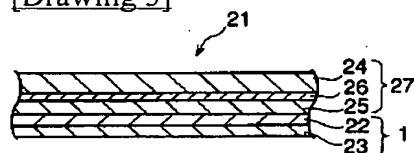
[Drawing 1]



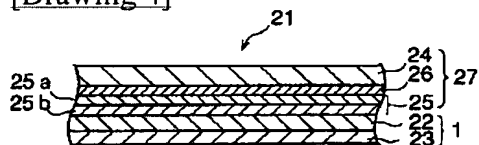
[Drawing 2]



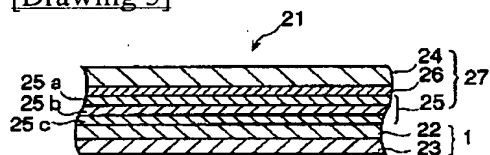
[Drawing 3]



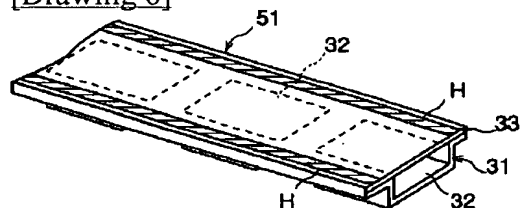
[Drawing 4]



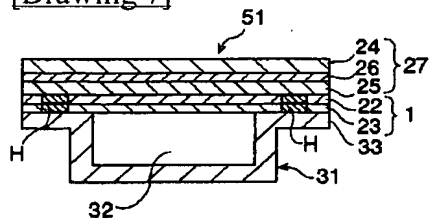
[Drawing 5]



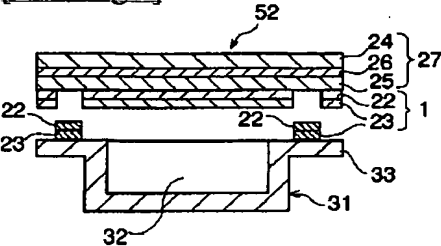
[Drawing 6]



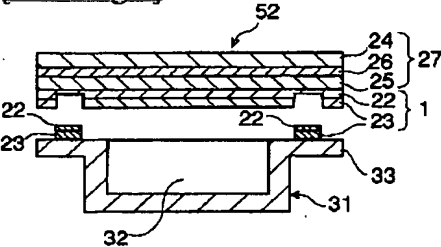
[Drawing 7]



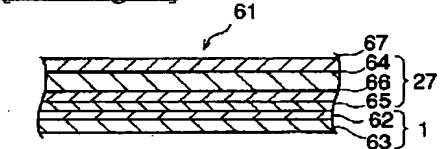
[Drawing 8]



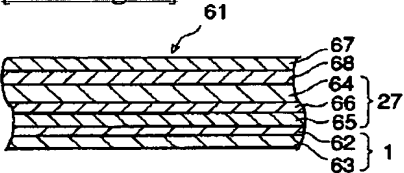
[Drawing 9]



[Drawing 10]



[Drawing 11]



[Translation done.]